

Independent Claim 1

Applicants' invention of Claim 1 is a bracket which includes occlusal and gingival tie wings with an archwire slot positioned therebetween. Each of these tie wings includes a center leg and mesial and distal tie wing portions, with the center leg extending further away from the archwire slot than each of the associated wing tip portions. Moreover, each of the tie wings also includes a notch disposed generally on its mesial side and a notch disposed generally on its distal side.

In the above-identified Office Action, the Examiner rejected Independent Claim 1 under 35 U.S.C. § 102(e) and under obviousness-type double patenting based upon Peterson. However, Peterson does not disclose or suggest Applicants' invention of Claim 1 as amended. For instance, Peterson does not disclose a gingival tie wing having a gingivally-extending center leg or an occlusal tie wing having an occlusally-extending center leg. Moreover, Peterson does not disclose a gingival or occlusal tie wing having two wing tip portions positioned on opposite sides of the corresponding center leg. Furthermore, Peterson does not disclose a gingival or occlusal tie wing in which its center leg extends further from the archwire slot than its two corresponding wing tip portions. In addition, Peterson does not disclose a gingival tie wing having two notches formed therein, or an occlusal tie wing having two notched formed therein. Instead, Peterson merely discloses a twin edgewise bracket with one type of notch positioned on the occlusal and gingival sides of each of its tie wings.

Based upon the foregoing, independent Claim 1 is allowable over Peterson. Moreover, Claim 1 is allowable over all of the references of record since none of such references, alone or in proper combination, disclose or suggest the combination of elements presented in Applicant's invention of Claim 1.

Independent Claim 6

Applicants' invention of Claim 6 is a bracket having gingival and occlusal tie wings with an arch slot therebetween. Each of these wings includes a center leg and mesial and distal wing tip portions. Moreover, a T-shaped hook extends from the center leg of one of the tie wings.

In the above-identified Office Action, the Examiner rejected Claim 6 under 35 U.S.C. § 103 based upon Kesling ('832) and Kawaguchi. More specifically, the Examiner has taken the position that Kesling discloses all elements of Claim 6 except for the T-shaped hook on the center leg, and that Kawaguchi discloses that it is known to locate a T-shaped hook on a tie wing. Therefore, the Examiner concludes that "[i]t would have been obvious . . . to provide the center leg of Kesling with a T-shaped hook, as taught by Kawaguchi in order to mount auxiliary force transmitting members thereto." Applicants disagree with this analysis.

The combination suggested by the Examiner does not disclose Applicants' invention of Claim 6. The Examiner refers Applicants to Figs. 1-2 of Kawaguchi for the disclosure of a hook. In relation to Fig. 1 of Kawaguchi, the proper combination with

Kesling would be to position the hook member 4 of Kawaguchi on either the mesial or distal end of one of the tie wings of Kesling. In contrast, Claim 6 requires that the T-shaped hook described therein extend from the center leg of one of the occlusal or gingival tie wings. Moreover, as a general matter orthodontic practitioners want the hook to be on the tie wing which is most proximate the gap to be closed by the interaction of an elastic with the hook. Consequently, in following this generally accepted theory there would not be a motivation to position the hook of Kesling centrally on any bracket. Therefore, not only does the combination of Fig. 1 of Kawaguchi and Kesling fail to disclose Applicants' invention of Claim 6, but the combination also fails to suggest the invention of Claim 6 and in fact would be contrary to accepted orthodontic treatment theory.

In relation to Fig. 2 of Kawaguchi, the proper combination would be for the hook member 8 of Kawaguchi to effectively occupy either the entire gingival or occlusal side of the bracket of Kesling. This is not only shown in Fig. 2, but Kawaguchi expressly provides in Column 3, lines 4-6, that "[t]he hook member 8 extends substantially across the entire gingival side of the appliance 6" As such, when combined with Kesling in this manner the result would be in total contrast to Applicants' invention of Claim 6. Claim 6 again requires that both the occlusal and gingival tie wings have a center leg and mesial and distal wing tip portions, for instance as illustrated in Fig. 1A. Therefore, the hook member

8 of Kawaguchi would totally obliterate the structure of Applicants' effectively T-shaped tie wings.

Based upon the foregoing, independent Claim 6 is allowable over the combination of Kesling and Kawaguchi. Moreover, Claim 6 is allowable over all of the references of record since none of such references, alone or in proper combination, disclose or suggest the combination of elements presented in Applicants' invention of Claim 6.

Independent Claim 13

Applicants' invention of Claim 13 is a bracket having gingival and occlusal tie wings with an arch slot therebetween. This arch slot has a convex portion on its floor which extends across the slot. An auxiliary slot is positioned under this convex portion.

In the above-identified Office Action the Examiner rejected Claim 13 under 35 U.S.C. § 103 based upon Suyama ('925) and Ghafari. More specifically, the Examiner indicated that "Suyama discloses the claimed invention except for the auxiliary slot positioned under the convex floor portion. Ghafari teaches that it is known to employ an auxiliary slot 22 so that various attachments may be applied to the bracket. It would have been obvious . . . to provide the bracket of Suyama with an auxiliary slot under the convex floor portion, in view of Ghafari... ." Applicants disagree with the Examiner's analysis.

The combination of Suyama and Ghafari does not disclose Applicants' invention of Claim 13. Initially, Ghafari only discloses positioning its occlusally-gingivally extending tongue receiving slot 22 at the mesio-distal center of the bracket and thus between the two tie wings 16. Moreover, Suyama only discloses positioning its two convexly-shaped floor portions in the arch slot on opposing sides of the mesio-distal center of the bracket. Therefore, the only proper combination of Ghafari and Suyama would be to position the tongue receiving slot 22 of Ghafari through the mesio-distal center of the bracket disclosed by Suyama, and thus between the convexly-shaped floor portions of its arch slot. In contrast, Applicants have specified in Claim 13 that its auxiliary slot is positioned under a convex portion on the floor of the archwire slot.

Positioning the auxiliary slot under the convex portion on the floor of the archwire slot per Applicants' invention of Claim 13, versus at a location between two convexly-shaped floor portions of the arch slot as disclosed by the combination of Ghafari and Suyama, offers a number of advantages. For instance, Applicants' positioning of the auxiliary slot under the convex portion of the arch slot allows for a lowering of the position of the arch slot and thus the arch wire (i.e., closer to the tooth), which enhances patient comfort. That is, the in/out of Applicants' bracket can be maintained at a desirable level by positioning the auxiliary slot under the convex portion of the arch slot floor in accordance with principles of Applicants' invention of Claim 13. If a vertical

slot is positioned in the manner taught by the combination of Ghafari and Suyama, namely between two convexly-shaped portions of a bracket's the arch slot, the thickness of the base of the bracket would have to be increased so that the web between the upper surface of the vertical slot and the upper surface of the base would have sufficient structural integrity. As a result, the in/out of the bracket would increase. Again and in contrast, the in/out of Applicants' bracket of Claim 13 is not affected by the incorporation of an auxiliary slot.

Based upon the foregoing, independent Claim 13 is allowable over the combination of Ghafari and Suyama. Moreover, independent Claim 13 is allowable over all of the references of record since none of such references, alone or in proper combination, disclose or suggest the combination of elements presented in Applicant's invention of Claim 13.

Independent Claim 15

Applicants' invention of Claim 15 includes a vertically extending auxiliary slot and an auxiliary orthodontic treatment device having a shaft which is positionable in this slot. This auxiliary slot and the shaft of the auxiliary orthodontic treatment device have complimentary configurations such that rotational movement therebetween is restricted.

In the above-identified Office Action, the Examiner rejected independent Claim 15 under 35 U.S.C. § 102(b) based upon Ghafari. However, Ghafari does not disclose or suggest Applicants' invention

of Claim 15 as amended. Ghafari only discloses a vertical tongue receiving slot 22 which receives a tongue 24 attached to a veneer 10. The veneer 10 is merely a cap which may be positioned over the bracket to "improve" upon aesthetics when undergoing orthodontic treatment (i.e., it hides the underlying bracket). That is, the slot 22 of Ghafari is used merely for cosmetic purposes and is not used whatsoever for the transmission of orthodontic treatment forces to the bracket. This is in contrast to Applicants' invention of Claim 15 where the auxiliary device is actually used in the orthodontic treatment.

Based upon the foregoing, independent Claim 15 is allowable over Ghafari. Moreover, Claim 15 is allowable over all of the references of record since none of such references, alone or in proper combination, disclose or suggest the combination of elements presented in Applicant's invention of Claim 15.

Independent Claim 17

Applicants' invention of Claim 17 is a bracket which includes two auxiliary slots. In the above-identified Office Action the Examiner rejected independent Claim 17 under 35 U.S.C. § 103 based upon Kesling ('832). More specifically, the Examiner has taken the position that since Kesling discloses a single auxiliary slot 50, "[i]t would have been obvious . . . to provide the bracket with a second auxiliary slot since it has been held that duplication of parts would have been obvious to the skilled artisan." The

Examiner cited St. Regis Paper Co. v. Bemis Company, 193 U.S.P.Q. (BNA) 8 (7th Cir. 1977) for this proposition.

Applicant believes that St. Regis Paper Co. actually supports the patentability of Claim 17. More specifically, the Seventh Circuit in St. Regis Paper Co. specified with regard to the rearrangement of "old elements in new combinations with each element performing the same function it performed in the prior art, id. at 11, that "[u]nless the combination is 'synergistic, that is resulting in an effect greater than the sum of the several effects taken separately,' it cannot be patented." Id. Applicants believe that its combination of elements of Claim 17 is synergistic in that it provides for a more versatile bracket. For instance, in the case where a twin bracket is being used in treatment and an interconnected hook is being used to close a gap from an extraction, typically the hook is positioned on the wing of the bracket which is closest to the gap. In the event that the hook is not fixedly attached to the bracket, but instead interfaces with an auxiliary slot, this therefore controls the positioning of this slot. In this case, the positioning of a bracket's single vertical slot may dictate that it only be positioned on certain of the teeth.

In contrast to the foregoing, Applicants' invention of Claim 17 and its twin slots allows this bracket to be more universal. For instance, a hook may be positioned in the slot which is closest to the tooth gap being closed. That is, the location of the gap is irrelevant when the bracket of Claim 17 is used due to its dual

auxiliary slot configuration. Applicants' maintain that this increased versatility is synergistic and renders Claim 17 not obvious based upon Kesling. This situation is different than that presented in St. Regis Paper Co. where the "basis of novelty" was merely the addition of another ply of material to increase the strength of a known bag, when adding such plies of material was known to increase strength.

Based upon the foregoing, independent Claim 17 is allowable over Kesling. Moreover, Claim 17 is allowable over all of the references of record since none of such references, alone or in proper combination, disclose or suggest the combination of elements presented in Applicant's invention of Claim 17.

New Claims

Newly added independent Claim 21 includes the content of objected to Claim 14, and therefore is in condition for allowance.

Newly added independent Claim 22 includes the elliptical configuration presented in Claim 4. Applicants believe that Claim 22 is allowable.

Based upon the foregoing, all pending claims are in condition for allowance and such disposition is respectfully requested. In the event that a telephone conversation would further prosecution

and/or expedite allowance, the Examiner is invited to contact the undersigned attorney.

Respectfully submitted,

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